IN THE CLAIMS:

1-47. (cancelled)

48. (new)   An input system for selecting a point by a user in a 3D volumetric visualization of a three-dimensional data set, comprising:

a volumetric 3D monitor which shows the 3D volumetric visualization surrounded by an associated surface or surfaces on which a reference point is definable with respect to said 3D visualization shown by the monitor;

a selection unit to select said reference point on the surface or surfaces relative to the 3D volumetric visualization on the volumetric 3D monitor of the three-dimensional data set selected by the user, a direction unit to specify a direction from said reference point to said point being selected by the user in the 3D volumetric visualization on the volumetric 3D monitor, and a distance unit to set a distance value from said reference point along said direction to said point being selected in the visualization.

49. (new)   A system of claim 48 wherein said surface or surfaces is or are virtual.

50. (new)   The input system according to claim 48 wherein the selection unit comprises a positioning unit to position the reference point on the surface or surfaces, and a sensor registering a position of the reference point on the surface or surfaces.

51. (new)   The input system according to claim 48 wherein the selection unit comprises a mouse, and a movement of the mouse registered by the mouse corresponding to a movement of the reference point on the surface or surfaces.

52. (new)   The input system according to claim 48 wherein the direction unit comprises a level tiltable in a direction, and a sensor registering a tilting of the level in the direction.

53. (new)   The input system according to claim 48 wherein the direction unit comprises a joystick tiltable in two directions, tilting of the joystick unambiguously specifying two angles for direction specification.

54. (new)   The input system according to claim 53 wherein the joystick is structurally connected with a mouse.

55. (new) The input system according to claim 48 wherein the selection unit and the direction unit comprise a pointer wand, and at least one of position and orientation of the pointer wand specifies respectively at least one of the reference point and the direction with respect to the visualization.

56. (new) The input system according to claim 55 wherein at least one of the position and orientation of the pointer wand is measurable by means of ultrasonic elapsed-time measurements.

57. (new) The input system according to claim 56 wherein the pointer wand comprises at least two ultrasonic transmitters, and the input system additionally comprises a receiving unit to receive ultrasonic signals and a synchronization unit to synchronize the ultrasonic transmitters and the receiving unit.

58. (new)   The input system according to claim 57 wherein the synchronization unit is connected by a radio connection with the ultrasonic transmitters of the pointer wand.

59. (new) The input system according to claim 56 wherein the pointer wand comprises at least two ultrasonic reflectors, and the input system additionally

comprises an ultrasonic transmitter, a receiving unit to receive ultrasonic signals, and a synchronization unit to synchronize an ultrasonic transmitter and a receiving unit.

60. (new) The input system according to claim 59 wherein the ultrasonic reflectors are designed such that they reflect an ultrasonic pulse with at least one of different strength and with characteristic pulse form, depending on a frequency of the ultrasonic pulse.

61. (new) The input system according to claim 48 wherein the distance unit comprises a rotatable small wheel and a sensor to detect rotation.

62. (new) The input system according to claim 58 wherein the input system also comprises a button to actuate a signal.

63. (new) The input system according to claim 48 wherein the input system also comprises an output unit to output a signal that comprises preferred information about at least one of the reference point, the direction and the distance value.